How to plant a healthy disease free field

1. Prepare the land well, remove (rouge out) any traces of Napier grass if any was in the field targeted for planting.

2. Seek, select and use healthy and disease free planting material. To establish the Napier crop one can use either mature Napier canes and/or root splits. Plant a 3-node cane into the ground at about 30 degrees, so two of the nodes are buried in the soil and one is above the ground. Plant more rows with a spacing of about 90 cm (3 feet) between the rows x 2 ft (60 cm) between plants. Under the push pull technology system plant at least three rows of NSD resistant Napier all round the maize field. The spacing should be 75 cm between rows and 50 cm between Napier grass plants within a row.

3. For best results the planting hole should be enriched with well prepared farmyard manure where possible.

4. Use clean materials for planting from reputable bulking sites like KALRO, Western Kenya ATCs and some commercial bulking farmers. e.g. varieties –Mbita, KALRO, Western Kenya ATCs and some commercial bulb forming farmers. To establish the field targeted for planting.

5. Weed the Napier grass plot regularly. If any of the cuttings die, fill in the gaps with new ones.

6. Harvest the grass following a pattern. Harvest the grass when it is 90-120 cm (3-4 feet) high. Beyond that height most of the nutrients will be stored in the canes. Begin the continuous cutting at one end of the row, cut enough grass to use. Where possible apply liquid manure.

Napier grass Do not’s:

- Do not intercrop Napier with cereals, allow them to overgrow or allow animals to graze directly on them.
- Do not grow Maize and Napier grass in close proximity.
- Do not grow Napier grass in the same place for two consecutive years.
- Do not grow Napier grass in an area where it was grown in the previous year.
- Do not apply too much fertilizer. Over-fertilization will cause Rapid Stunting Disease.
- Do not allow Napier grass to grow too tall. Cutting should be done when it is 90-120 cm (3-4 feet) high.

Advantages of a healthy disease free field

- Increased and secured Napier fodder production, from a healthy and clean planting plot.
- A continuous supply of cattle green feed from the resistant Napier grass varieties.
- Earn an income from both fodder seed and feed sales.
- Increased and assured Napier fodder production, from a healthy and clean planting plot.
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- Napier grass propagation easily, fairly labour-intensive and grows very fast.
- Overcome The Napier Stunt Disease

Where do I get Napier Stunt Disease resistant planting material

Contact icipe, Agricultural Training centres, KALRO or nearest Agriculture/Livestock office for direction.
What is Napier grass?

Napier grass (Pennisetum purpureum) is a high-yielding fodder grass which tolerates frequent cutting. These qualities make it the most important fodder grass in East Africa. It is grown by the majority of the region’s smallholder dairy and cereal farmers.

What is Napier Stunt Disease (NSD)?

NSD is a disease that affects Napier grass. Its symptoms are visible in the re-growth that happens after the grass has been cut or grazed. Affected plants are recognized by severe stunting and yellowing, and a profuse growth of shriveled, unhealthy new plant shoots. Often the whole stool is affected, and dies. NSD also attacks other fodder grasses such as Cynodon dactylon and Hyparrhenia rufa.

What causes the Napier Stunt Disease?

• NSD is caused by a specialized bacterium called phytoplasma, which stops the grass from taking up the nutrients it needs to grow. (specifically 16SrXI, already known to cause stunting in rice and Bermuda grass).

• The phytoplasma are also spread through the common practice of propagating split Napier grass roots for multiplication.

How is Napier Stunt Disease transmitted?

The phytoplasma are carried from plant to plant by the leafhopper Maiestas banda Kramer, which draws its food from the part of the Napier grass which is infected by phytoplasma. High population densities of Maiestas banda Kramer on study field sites confirmed the identification of the leafhopper as the principal insect vector for NSD.

Phytoplasma transmission cycle

Acquisition (≥1 hour)
Insect acquires phytoplasma from phloem
Latency period (2-6 weeks)
Phytoplasma crosses insect gut wall, multiplies in the haemolymph and salivary glands
Inoculation (≥1 hour)
Insect transmits phytoplasma to another plant.
Plant latency (length depends on host and phytoplasma strain)
Phytoplasma replicates in plant and symptoms develop.

The phytoplasma are also spread through the common practice of propagating diseased split Napier grass roots for multiplication. After rigorous research trials, icipe selected and released two Napier varieties which are resistant to the Napier Stunt Disease for the technology transfer. Namely, these are Ouma II and South Africa cultivars, which were released to farmers for an integrated disease management approach.

Have you seen Napier stunt Disease damage your fodder crop?

Fodder losses are big and can even result in nil harvest. The symptoms are well observed on re-growth after grazing or cutting the grass. Affected grass becomes yellow, stunted, with profuse growth of withered unhealthy new plant shoots and most often the whole stool dries up and dies.

What is Napier Stunt Disease resistant Ouma II (A) and South Africa cultivars (B)